NOAA Coastal Storms Program

Integrated Nowcast – Forecast Operational System (INFOS) for Rip Current Observation, Prediction and Warning in Lake Michigan and Superior

2015 State of Lake Michigan – Great Lakes Beach Association Conference
Grand Traverse, Michigan
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Wisconsin Coastal Management Program

Integrated Nowcast – Forecast Operational System (INFOS) for Rip Current Observation, Prediction, and Warning in Lake Michigan and Lake Superior

Project Objective

Improve rip current beach hazard warning by developing an innovative and cost-effective means to characterize, identify and detect rip currents.

Project partners

UW-Madison, UW Sea Grant, MN Sea Grant, WI Coastal Management, NOAA Coastal Storms, NOAA National Ocean Service, GLERL, NOAA National Weather Service, City of Port Washington, City of Duluth and Milwaukee County.

Project Tasks

- Real-time observation system for rip currents and nearshore waves
  - Mechanistic process-based cross-scale modeling for rip currents
- Integrated Nowcast (real-time) Observation and Forecast Operation System (INFOS)
- Communication, coordination and community education and outreach
  - Leverage communication and outreach from other NOAA Coastal Storms funded projects

Project Locations

Duluth, MN
Park Point Beach

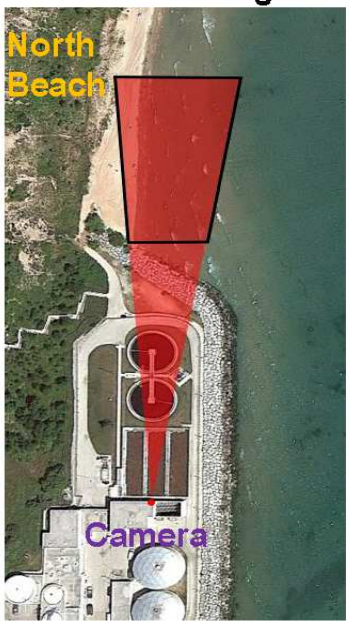
Port Washington, WI
North Beach

Milwaukee, WI
Bradford Beach

Real-Time Data

Real-time Imaging System

Port Washington



Wireless transmission

Data procession

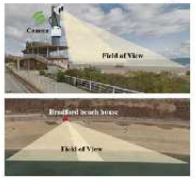
INFOS Platform

INFOS Port Washington

http://infosportwashington.cee.wisc.edu/north_beach_cam.html

Image recording

Bradford and McKinley Beaches, Milwaukee



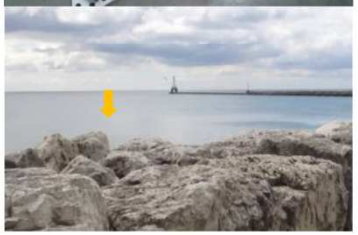
Park Point Beaches, Duluth

Real-Time Data

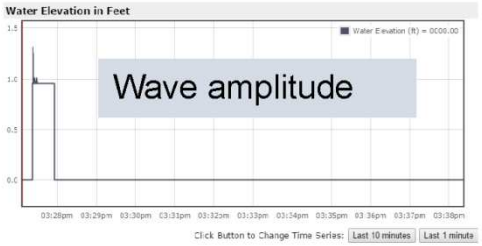
Real-time Wave Observation System

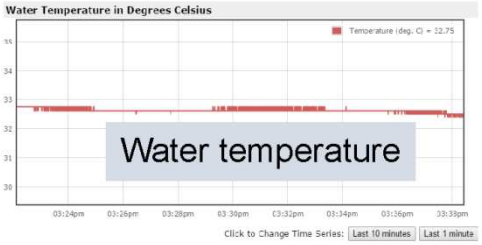
Port Washington

Wave Sensor *and* *Frame*



Website Data Display

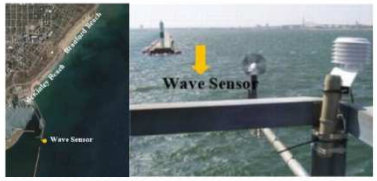




Live demo

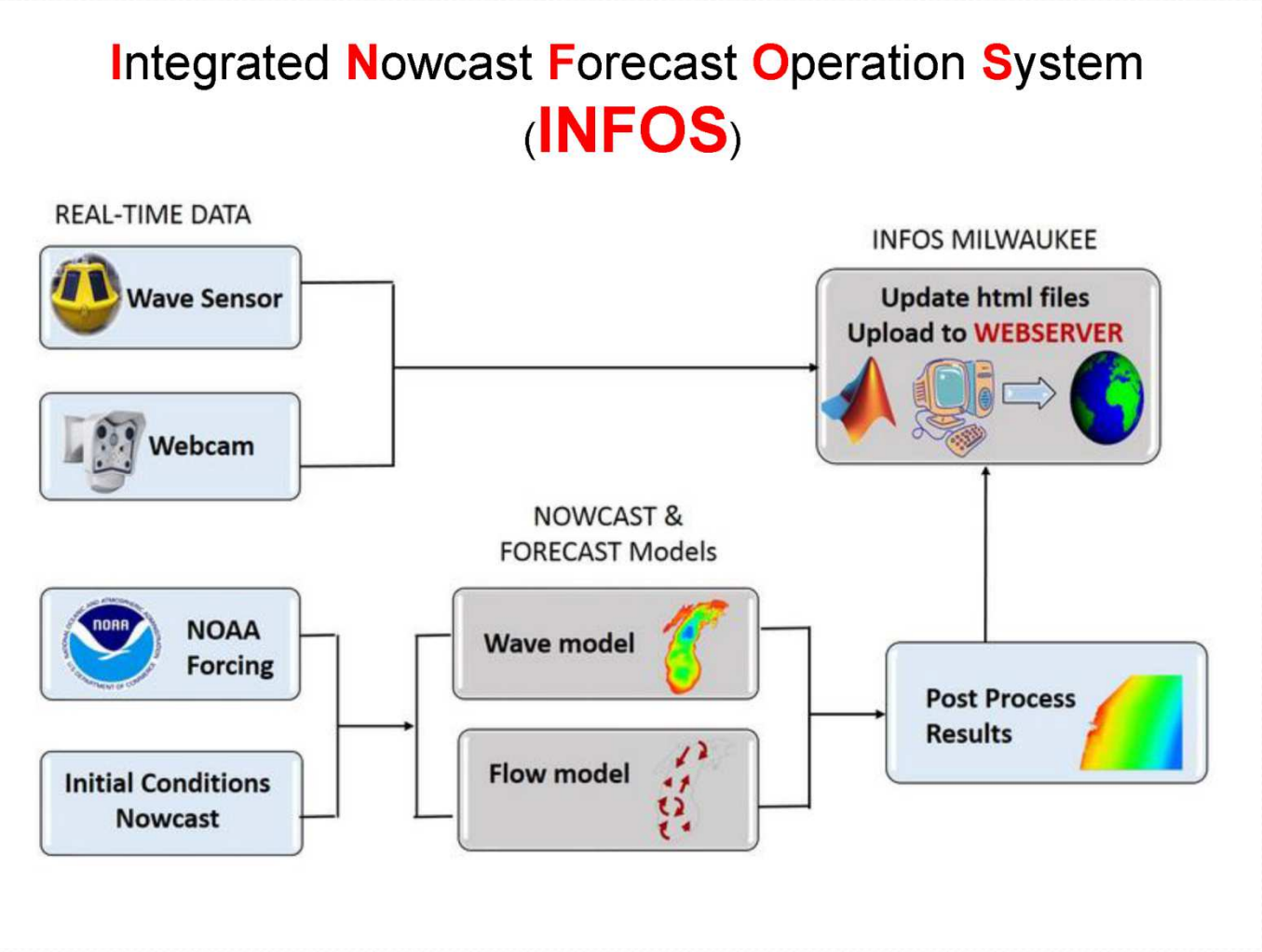
http://infosportwashington.cee.wisc.edu/wave_sensor_pw.html

Breakwater of Milwaukee Marina



Duluth Harbor South Pier

Integrated Nowcast (real-time) Observation and Forecast Operation System (INFOS)

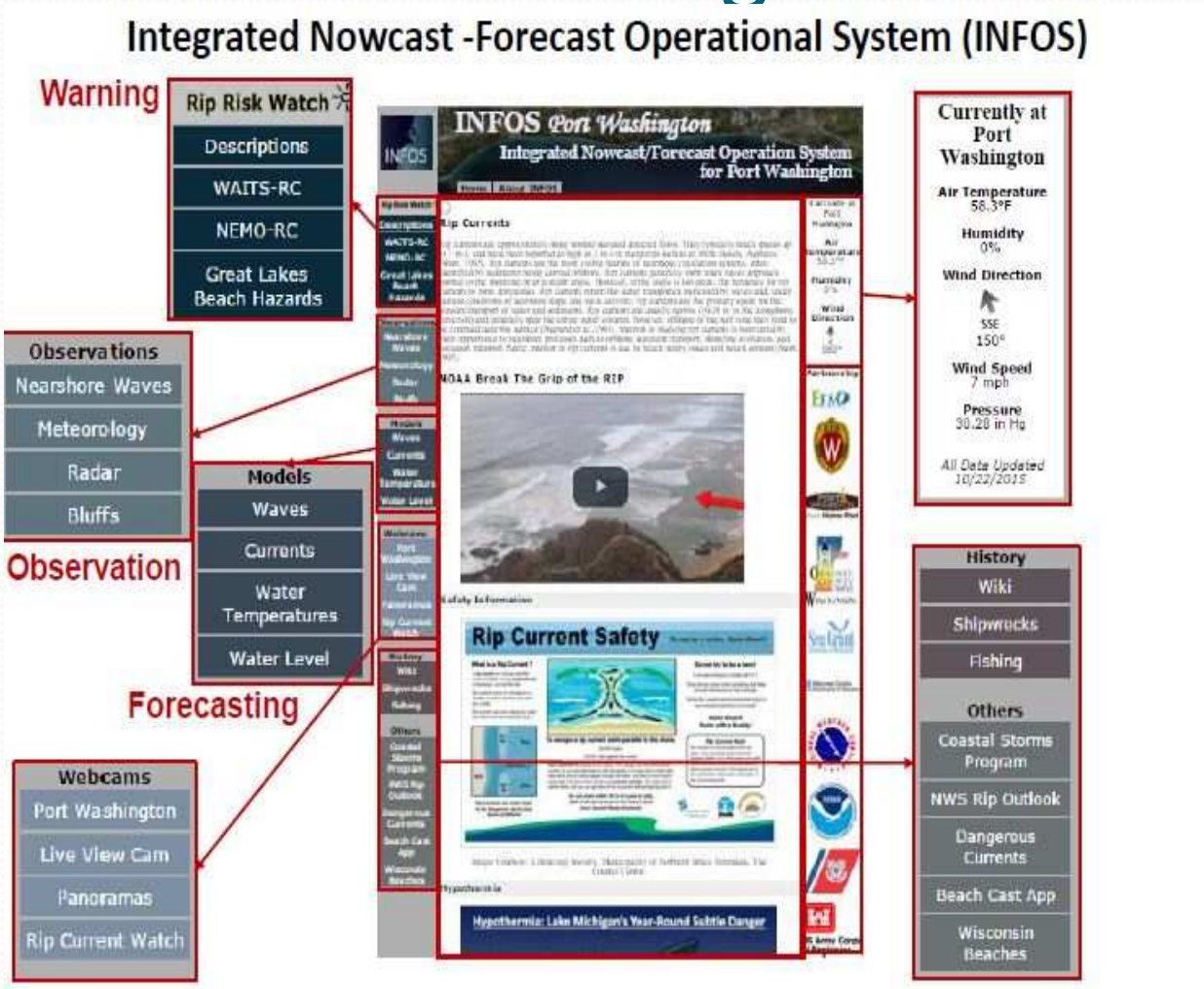


Integrated Nowcast (real-time) Observation and Forecast Operation System (INFOS)

- INFOS Port Washington
  http://infosportwashington.cee.wisc.edu/

- INFOS Port Washington (user friendly version)
  http://infosportwashington.cee.wisc.edu/pw_rip_watch.html
- For a much more detailed PowerPoint and updated information: Dr. Chin Wu, email **chin.wu@wisc.edu**

Port Washington INFOS Home Page



Port Washington INFOS
Current Waves & Rip Warning

Real-Time Rip Current Watch at Port Washington, Wisconsin

Update at: 2015/10/29 1:51 PM	
Wave Height	N/A
Wave Period	N/A
Wind Speed	18.3 mph
Wind Direction	W
Air Pressure	29.6 in Hg
Air Temp.	44.8 °F
Water Temp. (surface)	41.2 °F
Water Temp. (bottom)	N/A

Rip Current Risk Levels

< 1 ft	1-2 ft	> 2 ft
Low Risk	**Moderate Risk**	**High Risk**

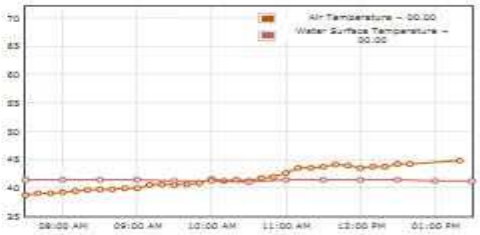
A LOW RISK implies that dangerous waves and currents are not expected. However, dangerous currents may exist at any time near breakwater. Always use caution and never swim alone.

Recent 6 Hours Conditions

Wave Height in Feet

The wave sensor has been removed for the winter season. Wave data is not available now.

Temperatures in Fahrenheit



Note: More information is available at http://infosportwashington.cee.wisc.edu.

Android App can be downloaded at http://infosportwashington.cee.wisc.edu/infos_pw.apk.

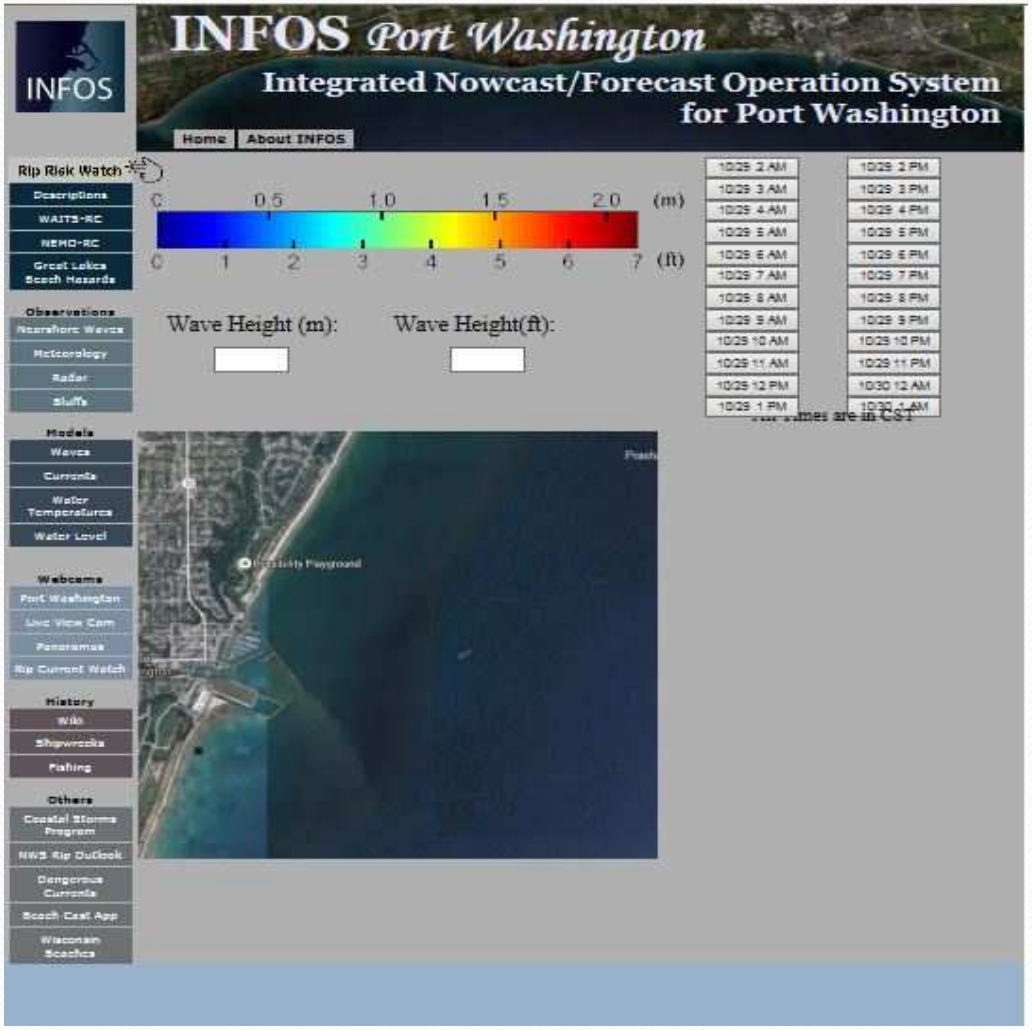
Disclaimer: Care must be taken when using these products as they are experimental. Please send questions or comments to yliu99@wisc.edu or chinwu@engr.wisc.edu.

Port Washington INFOS
Current Waves & Rip Warning:NEW!

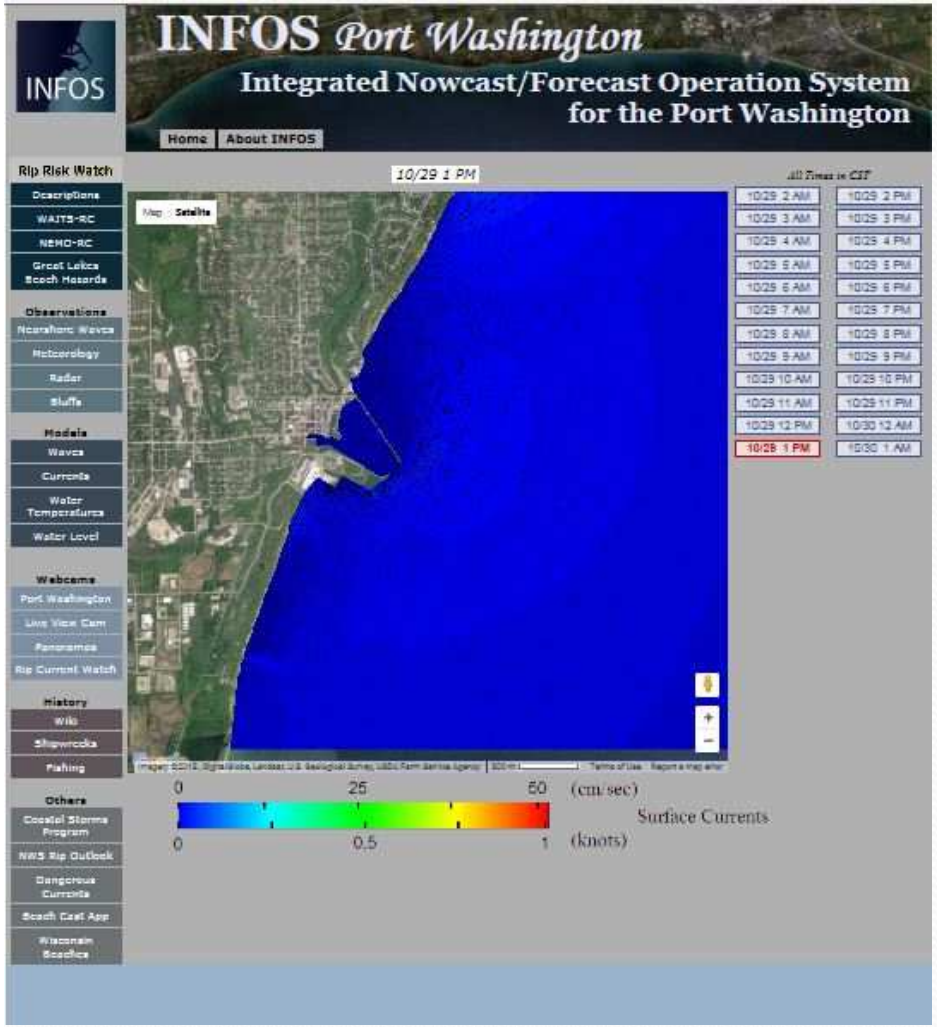
Wide Angle Imaging Tracking System (WAITS)
for Rip Current

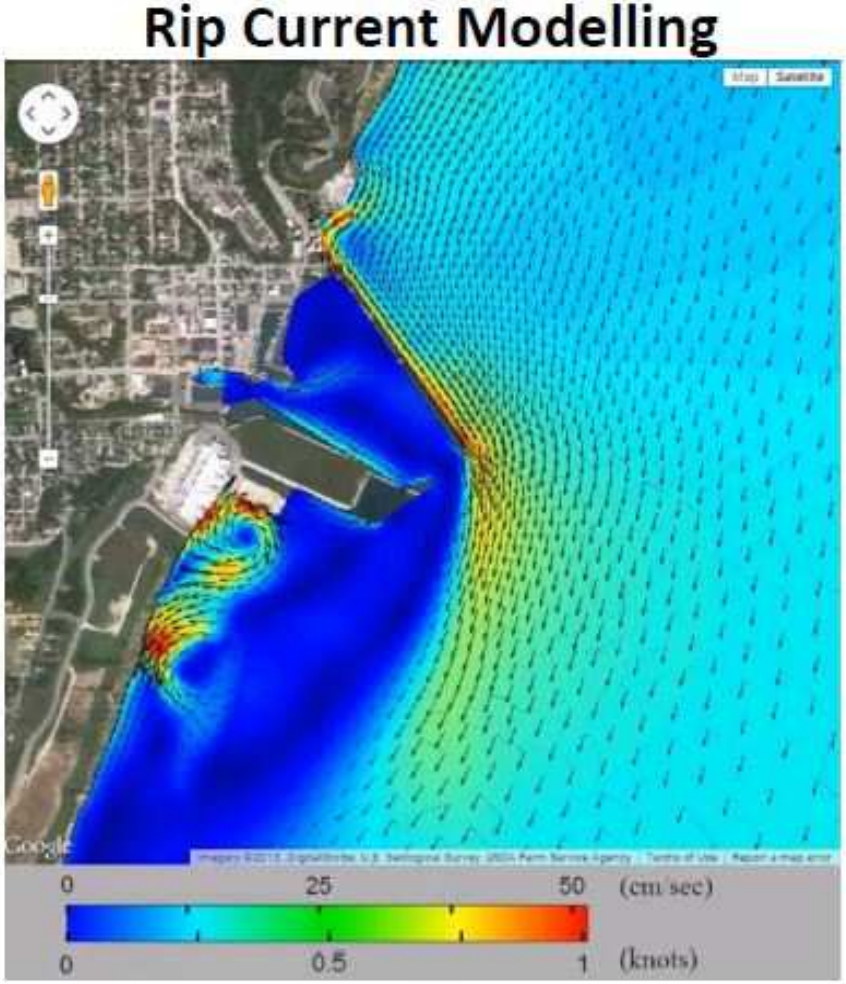
Current speed and **direction** are obtained using
Particle Imaging Velocimetry (PIV) technique

Port Washington INFOS Model Waves



Port Washington INFOS Model Currents





Questions?